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A SMALL COLLECTION OF MAMMALS FROM NORTH-EASTERN CHINA.

BY SAMUEL N. RHOADS.

These notes are based on a collection of seventeen mammals brought to Philadelphia by Messrs. George and J. Edward Farnum, the product of a hunting trip in the Chinese and Mongolian territories northeast of Pekin with Dr. A. Donaldson Smith during May, June, July and August, 1897. By the generosity of these three gentlemen the Academy of Natural Sciences of Philadelphia comes into possession of the greater part of the collection, thus adding seven species new to its museum. An account of their trip is being prepared for the *Geographical Journal* of London.

1. **Microtus (Microtus) mongolicus** (Radde).[1] Mongolian Vole.

Seven specimens, Nos. 4,590 to 4,596, from along the shores of the Sungari River in Mongolia north of Petun, come near *M. arvalis* Pallas as defined by Poliakoff, Lataste and G. S. Miller, Jr. From their greater size and resemblance to Radde's plate of *mongolicus,* both as regards external and cranial characters, as well as from their geographic position, it appears best to consider them as *mongolicus.* Externally the adult specimens resemble closely in size and color very large *M. pennsylvanicus* taken at the same season (July 16th) in the vicinity of Philadelphia. The pelage of *mongolicus,* however, is more thin and coarse, indicating a habitat in a hot climate. In the skull of an old male specimen the interorbital ridges have coalesced on the frontal suture in a sharp elevated median ridge. Comparing it with *M. pennsylvanicus* of same age and sex their greatest zygomatic width is about the same, but the length of the *mongolicus* skull is about 4 millimeters greater and its interorbital elevation above the alveolus of $\underline{\text{m. 1}}$ is 2 mm. greater, showing a relative length and depth of cranium quite remarkable in the genus and nowhere approached in any American species known to me. The molar series are correspondingly long and narrow. It is a true member of the subgenus *Microtus* as defined by Miller.[2] The hind foot is 24 mm. from end of heel to end of claws; the tail 45 mm. long, these dimensions being taken from the dry specimen. No measurements for any of the specimens in the collection were recorded by the collectors.

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[1] Reis. im Ost-Sibir., I, p. 194, pl. VII.

[2] N. Amer. Fauna, No. 12, 1896.

2. **Mus humiliatus** M. Edwards. Pekin River Rat.

An adult female, No. 4,598, from the steep banks of a stream at Shiao Ho Tzu undoubtedly represents Milne Edwards' species described[3] from the environs of Pekin, and with whose measurements and plate it closely agrees. Edwards states that it represents *Mus rattus* in China, an unaccountable statement, perhaps a slip of the pen for *Mus decumanus*, as its external and cranial characters are very close to the short-eared, brown-backed, gray-bellied short-whiskered Norway Rat. Its short tail and small cranium, however, easily distinguish it from *decumanus*. The skull of the specimen is 37.5 mm. in occipito-nasal length and 18.5 mm. in its greatest zygomatic expanse. The nasals are relatively short, not reaching so near to the superior termini of the premaxillaries as in *decumanus* or *rattus*. The relations of this species to *Mus caraco* Pallas are seemingly close and it may yet prove that *humiliatus* is only a subspecies of *caraco*.

3. **Mus** sp.?

The scalp and skull of an adult, long-whiskered, long-eared and long-nosed rat, No. 4,599, taken southeast of Dolonnor apparently represent a species of slender and elegant proportions, with a skull nearly as long as in the specimen of *humiliatus* above recorded, but with a greatly diminished zygomatic width and cranial depth. These characters and the great relative length of rostrum put it in the *Mus rattus* group. Its cranium is much smaller and more slender than *M. rattus alexandrinus* and the mandibles are unusually narrow and weak for a *Mus*. The upper head is yellowish-brown, heavily lined with black, darkest around eyes. Ears brown-gray; lips white; throat yellowish-white; gray of cheeks broadly bordered inferiorly by ochraceous buff which probably extended increasingly along neck and sides of body.

4. **Alactaga annulata** (M. Edwards). Subsp.? Jerboa, Khin Gan.

A young female Jerboa, No. 4,597, about two-thirds grown, from all appearances should be classed under the above name. As would be expected, its immaturity is evinced by the darker pelage over the entire upper parts as contrasted with M. Edward's figure[4] of an adult specimen. This dark coloration results from the black tips of the upper pelage being more strongly developed and the buff ground colors less intense than in the adult stage. The peculiar markings of the tail fit M. Edward's figure so well that its specific affinity to *annulatus* is very probable. On the other hand our specimen was not taken in the Mongolian desert but at an elevation of 3,550 feet in a high fertile valley, on the border of the desert in the Khin Gan Mountains. It is probably a dark race of *annulata,* as yet unnamed.[5]

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[3] Recher. Mam., 1868–'74, p. 137.

5. **Tamias (Eutamias) asiaticus** (Gmelin). Asiatic Chipmunk.

Two adult specimens, No. 4,601 from Tung Ching Tzu and No. 4,602 from Sian Lang Kou, the first taken in May, the latter in June, both from the Province of Pechili along the foothills of the Khin Gan Range south and east of Dolonnor, are of interest when compared with American species of the subgenus *Eutamias.* Founded in 1880 by Trouessart as a subgenus, *Eutamias* has lately been considered by Dr. Merriam[6] as of full generic value, with *T. asiaticus* as its type, and including several species of West American chipmunks of the *townsendi, speciosus* and *pictus* groups.

As contrasted with typical *Tamias* of Illiger, with our eastern *striatus* as its type, *Eutamias* presents invariably a persistent second upper premolar, never found in *striatus* and its east American congeners. This feature is the only one given by Trouessart to characterize *Eutamias,* and it is worthy of mention that in his recent *Catalogus Mammalium* that author does not recognize his *Eutamias* even as a subgenus. It is, however, worthy of that rank and no more, as its generic recognition necessitates a like subdivision of *Spermophilus* into genera which, as such, are meaningless in nomenclature and only confuse where intended to elucidate the affinities of distinct but closely related groups.

The cranial characters of *T. asiaticus* do not seem to have been made the basis of comparisons by any other writer than Trouessart between the species of *Tamias* of the Old and New World.

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[4] Recher. Mam., pl. X.

[5] Radde's name, *Dipus jaculus* var. *mongolica,* in Mél. Biol. Acad. St. Pet., III, 1861, p. 680, cited by Trouessart, may be applicable to M. Edwards' species. If so it has priority over *A. annulata.*

[6] Proc. Biol. Soc. Washn., July, 1897, p. 189.

Dr. J. A. Allen makes no mention of them in his publications on the subject. The skulls of the two adult specimens secured by the Messrs. Farnum present several characters of interest. First, as to their subgeneric status, it is noteworthy that *asiaticus* not only has the well developed and persistent second premolar found in our west American species but also exhibits 6 to 8 strongly developed sulci on the pigmented face of the upper incisors, analogous to those often exhibited by *Arctomys* from the Cascade Mountains. An examination of several of our Cascade Mountain, Sierra Madre and British Columbia species of *Eutamias* exhibits the same character, and in some species, as *T. merriami*, *T. quadrivittatus* and *T. townsendi* it is very marked. *T. striatus* and its allies of the subgenus *Tamias* have normally smooth incisors as in *Spermophilus* and its subgenera *Ammospermophilus* and *Callospermophilus*. Dr. Allen's final separation of all American species of *Tamias* from *T. asiaticus*[6] was based solely on an examination of the *external* characters of Siberian specimens, considered in connection with the wide geographic separation of the habitats of the most boreal forms known in Eastern Asia and Western America. An English mammalogist of great note has taken occasion to deplore Dr. Allen's change of arrangement of American species as an illustration of the species-splitting which characterizes present day methods of American mammalogists. Had our critic been at the pains to inquire into the subject by personal examination of specimens he would certainly have avoided choosing such an illustration; for the specific differences between *T. asiaticus* and its nearest ally in America are, in respect of the cranium, very marked. The skull of *asiaticus* is much larger than that of the largest American *Eutamias*. It is also relatively much wider than the skull of any American species of the genus *Tamias* and the great width of the nasal bones contrasted with their shortness immediately separates *asiaticus* from any other *Tamias*. There is a distinct supraorbital process or spine in *asiaticus* caused by the more posterior reach of the normal supraorbital notch found in all other species of the genus. The skull of No. 4,602 is 40.5 mm. long; its greatest width 22.5 mm.; nasal length, 12.3 mm.; posterior breadth of nasals, 5 mm.; interorbital constriction 10.2 mm. Unfortunately no measurements of the Mongolian specimens were taken before skinning. The hind foot, measured dry, is 38 mm. in one specimen and 40 mm. in the other, indicating a species larger than *striatus*.

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[6] Bull. Amer. Mus. N. H., III, p. 45.

6. Lepus sp. Hare.

A hare, No. 4,600, whose characters indicate a near approach to maturity, evidently belongs to a species about the size of *Lepus americanus.* It was taken on the east slope of the Khin Gan Mts., in Mongolia, at an elevation of about 4,000 feet. It is much smaller than any hare described from this region by Radde, Schrenck, Pallas and others, the hind foot measuring only 105 mm. in length. The tail and ears are relatively long, the former black above and white below. The ears are blackish-gray and ochraceous, like upper head and body, and bordered at tips with black. The belly, breast, vent and chin are pure white to bases of hairs; the lower neck, fore legs, and space between shoulders are tawny ochraceous. The skull characters show close affinity to *Lepus americanus.* It was taken July 15th, and is in full summer pelage.

7. Gazella gutturosa mongolica (Heude). Mongolian Gazelle.

An adult male and a yearling of the same sex, of the "Imperial Sheep" or "Houang Yang-tze" are represented by two heads in the collection. On the supposition that Heude's species *mongolica*[7] is separable from the Siberian *gutturosa* of Pallas, I adopt the above trinomial. Its separability from what Heude figures as *hillieriana* on the next plate I am inclined to doubt. In the yearling the horns are about 3 inches long and curve inward, their points touching and slightly overlapping above the occiput. The specimens were taken in the Imperial Hunting Park northeast of Dolonnor. A female of the same species, shot June 6th, contained a nearly mature fœtus.

8. Capreolus pygargus (Pallas), subsp.? Mongolian Roe Deer.

The skull and scalp of a fine male specimen of this animal were secured in the Imperial Hunting Park. It is placed in the above category on the authority of Sir V. Brooke[8] who considers the Manchurian Roe to be at least a small race of *pygargus.*

It is remarkable that this specimen, shot in the middle of June, is possessed of a fine set of antlers from which the velvet has not wholly disappeared around the bur.

9. Lynx isabellinus (Blyth). Thibetan Lynx.

A fine adult specimen of *Lynx,* No. 4,603, also taken in the Imperial Hunting Park, agrees with Blyth's description of *isabellinus* as compared with the characters of the *L. lynx* (L.) of Europe. I am unable to state an opinion as to the specific value of *isabellinus* but the fact of specific identity among the several forms of *Lynx ruffus* found across the northern continent of America, and their close resemblance to *L. lynx* of Eurasia, suggests that *isabellinus* is only an eastern race of that species, characterized by fewer and weaker spots, more naked foot pads and paler color. The specimen was killed June 17th.

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[7] Mem. Hist. Nat. Chinois., 1894, p. 245. Pl. XXXVII.

[8] P. Z. S., 1878, pp. 917–918.